

What is claimed is:

1. A method of manufacturing a matrix of organic materials comprising:

5 sequentially forming on a surface of an insulating substrate, a first electrode layer and a patterned separator layer defining at least first and second cells;
sequentially forming a first organic material layer and a first second electrode layer covering all of the surface of the insulating substrate including the first electrode layer and the patterned separator;

10 removing the first second electrode layer and the first organic material layer located beneath the first second electrode layer from the second cells by laser ablation; and
sequentially forming a second organic material layer and a second second electrode layer covering all of the surface of the insulating substrate including the first electrode layer and the patterned separator.

15

2. The method according to claim 1, wherein the patterned separator defines first, second, and third cells, including

20 removing the first second electrode layer and the first organic material layer from the third cells before forming the second organic material layer,
removing the second second electrode layer and the second organic material layer located beneath the second second electrode layer from the third cells, by laser ablation; and
sequentially forming a third organic material layer and a third second electrode layer covering of all the surface of the insulating substrate including the first electrode layer and the patterned separator.

25

3. The method according to claim 1, wherein each of the first and second organic material layers comprises a respective light-emitting material producing a respective different color light upon stimulation.

30

4. The method according to claim 1, wherein the first electrode layer is a transparent electrode comprising at least one material selected from the group consisting of indium tin oxide, indium oxide, indium zirconium oxide, tin oxide, zirconium oxide, and a metal thin enough for transmission of visible light.

5 5. The method according to claim 1, including depositing at least one of a hole injection layer and a hole transport layer is deposited on the first electrode layer before depositing the first organic material layer.

10 6. The method according to claim 5, wherein the hole transport layer is at least one material selected from the group consisting of polyethylene dihydroxy thiophene, polyaniline, and tetraphenyl diamine and triarylamine.

15 7. The method according to claim 1, including depositing at least one of an electron injection layer and an electron transport layer on the first organic material layer before depositing the first second electrode.

20 8. The method according to claim 1, wherein each of the first and second organic material layers is a polymer and including forming the first and second polymers by spin-coating.

25 9. The method according to claim 1, wherein each of the first and second organic material layers is a low molecular weight organic material layer and including forming the first and second organic materials by vapor deposition.

10. The method according to claim 1, wherein the first and second second electrode layers are at least one mixture selected from the group consisting of LiF/Al, Ca/Ag, Ca/Al, LiF/Ca/Al, LiF/Ca/Ag, Yb/Al, Yb/Ag, LiF/Yb/Al, and LiF/Yb/Ag.

30

11. A matrix arrangement comprising:
an insulating substrate;
a first electrode layer covering a surface of the substrate;
a separator defining and separating a plurality of first and second cells, on the
5 first electrode layer;

first pixels having a first organic material layer, a first second electrode layer,
a second organic material layer, and a second second electrode layer sequentially
stacked in the first cells, on the first electrode layer; and

10 second pixels having the second organic material layer and the second
second electrode layer sequentially stacked in the second cells, on the first electrode
layer, spaced from the first cells by the separator.

12. The matrix arrangement according to claim 11 including a plurality of
third pixels, a third organic material layer and a third second electrode layer in the
15 first cells, sequentially stacked on the second second electrode material, the third
organic material layer and the third second electrode layer in the second cells,
sequentially stacked on the second second electrode material, and wherein the third
pixels have the third organic material layer and the third second electrode layer
20 sequentially stacked, in the third cells, on the first electrode layer, spaced from the
first and second cells by the separator.

13. The matrix arrangement according to claim 11, wherein the first
electrode layer is a transparent electrode comprising at least one material selected
from the group consisting of indium tin oxide, indium oxide, indium zirconium oxide,
25 tin oxide, zirconium oxide, and a metal thin enough for transmission of visible light.

14. The matrix arrangement according to claim 11, wherein each of the first
and second organic material layers comprises a respective light-emitting material
producing a respective different color light upon stimulation.

15. The matrix arrangement according to claim 11, including at least one of a hole injection layer and a hole transport layer between the first electrode layer and the first organic material.

5 16. The matrix arrangement according to claim 15, wherein the hole transport layer is at least one material selected from the group consisting of polyethylene dihydroxy thiophene, polyaniline, and tetraphenyl diamine and triarylamine.

10 17. The matrix arrangement according to claim 11, including at least one of an electron injection layer and an electron transport layer located at at least one of (i) between the first second electrode layer and the first organic material layer and (ii) between the second second electrode layer and the second organic material layer.

15 18. The matrix arrangement according to claim 11, wherein the first and second second electrode layers are at least one mixture selected from the group consisting of LiF/Al, Ca/Ag, Ca/Al, LiF/Ca/Al, LiF/Ca/Ag, Yb/Al, Yb/Ag, LiF/Yb/Al, and LiF/Yb/Ag.

20 19. The matrix arrangement according to claim 11, wherein the separator is a photo-resist film.

25 20. The matrix arrangement according to claim 11, wherein the first electrode layer is an anode layer and the first and second second electrode layers are cathode layers.